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(54) Identification system

(57) A first party at a first telephone 7 confirms their identity to a second person at a second telephone 8. The fingerprint of the first person is read and compared to a stored fingerprint pattern. If the stored and sensor fingerprint patterns match, the first telephone 7 transmits a signal to the second telephone 8 which controls a display 9 on the second telephone to display an image of the first person.

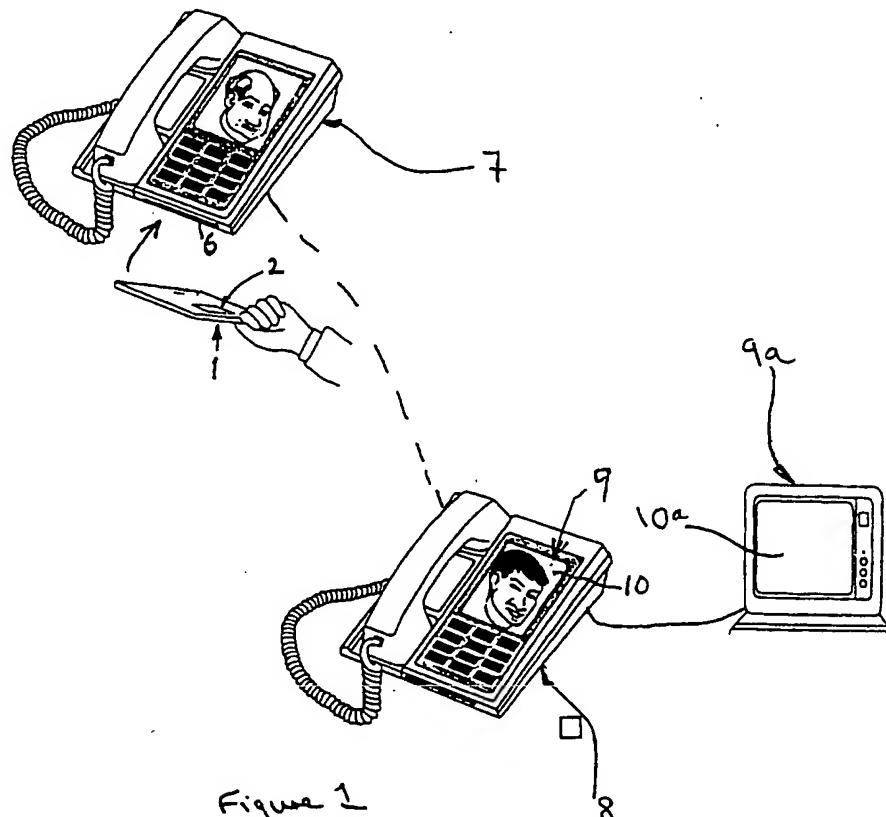


Figure 1

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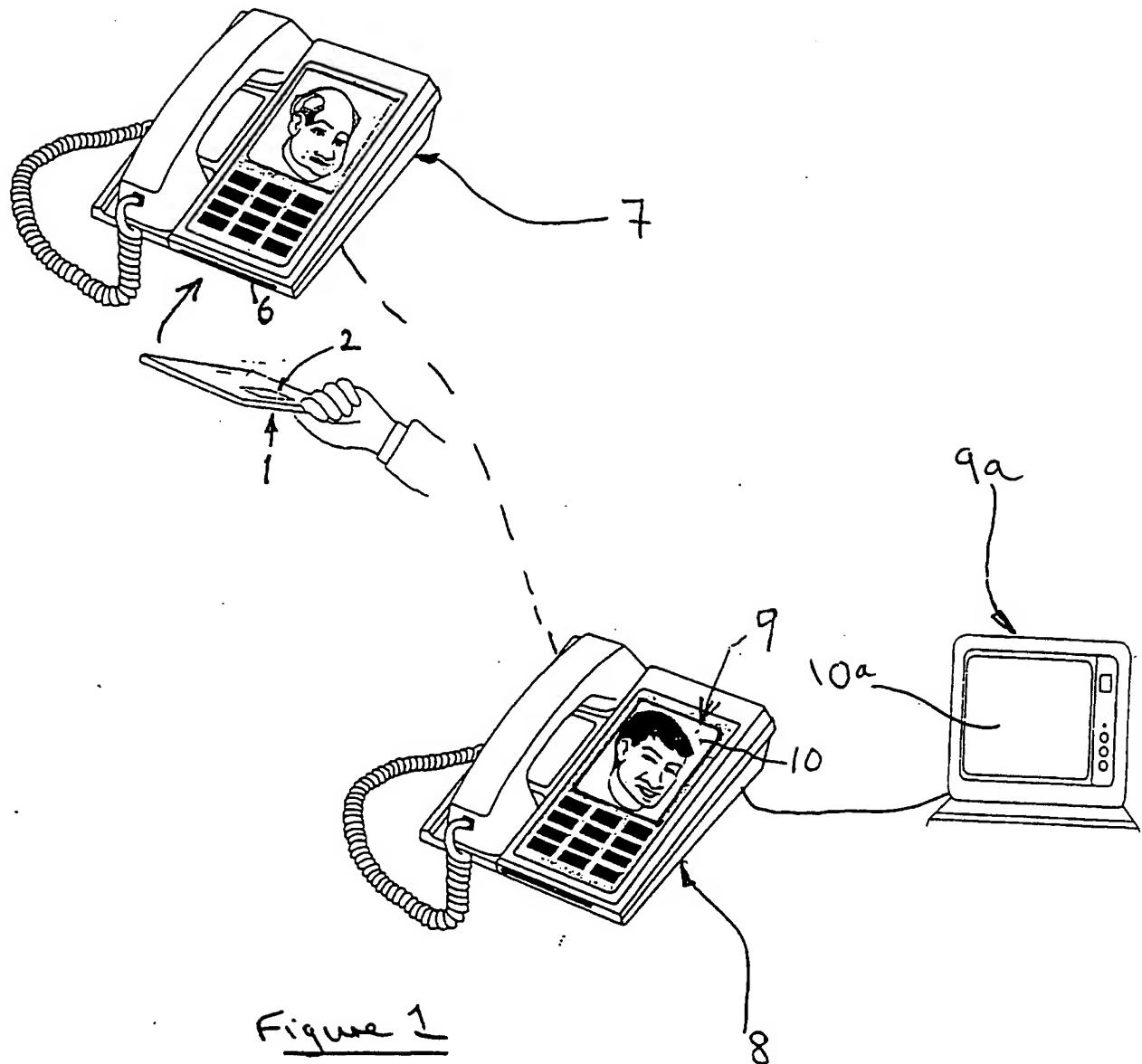


Figure 1

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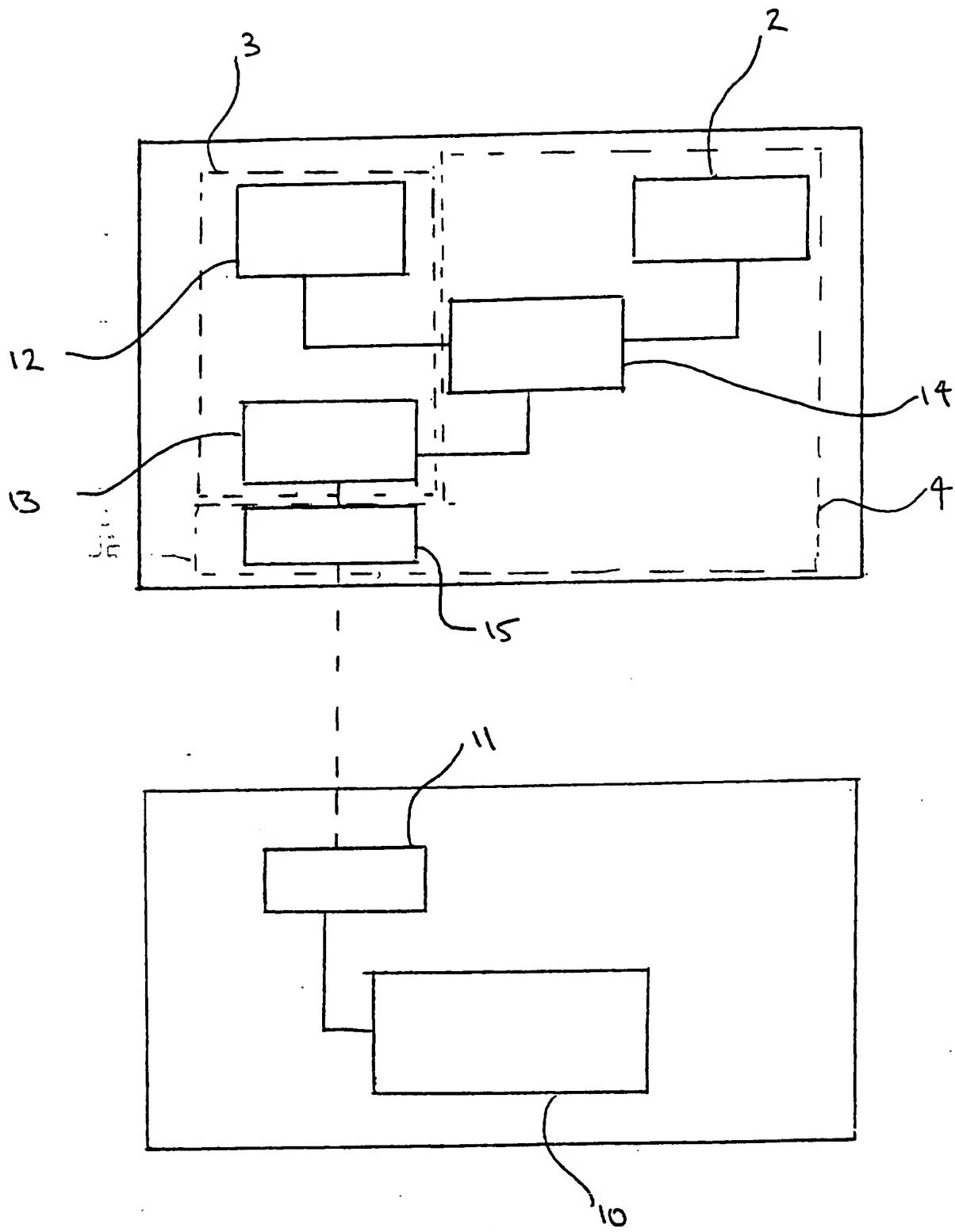


Figure 2

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IDENTIFICATION SYSTEM

This invention relates to an identification system for verifying the identify of a person.

It is often necessary to confirm that someone instructing
5 a transaction is who they claim to be or that they are authorised to carry out a particular transaction.

Identification cards carrying a photograph of authorised personnel are well known as are cards, eg bank cards, having a magnetic strip containing details of a four digit
10 code which can be compared to a code inputted by the carrier of a card into a card receiving machine.

Identification cards of the first type having a photograph on their surface which is always visible may be tampered with. For example, the photograph may be removed and
15 replaced with another. Furthermore, such cards cannot be used for a remote identification as they cannot be used to generate an identification signal which may be transmitted to a location remote from the card carrier and the card. This means that the card is not suitable for
20 identification of someone authorising the transaction over, for example, the telephone.

The magnetic strip type of identification card results in a 'yes' or a 'no' signal. The strip merely stores a code corresponding to the authorised card user's input code and
25 does not produce an identification signal which can be transmitted to a remote display to generate a display characteristic of the carrier of the card and readily identifiable therewith.

The invention is defined in claims 1 or 4 to which reference should now be made.

5 The invention of claims 1 and 4 allows one to generate a signal which can be transmitted to a remote display to produce a display readily identifiable with a particular user by someone monitoring the display.

10 Preferably, the second memory stores a bit map corresponding to an image of the face of the carrier of the card which is transmitted to a remote display to generate an image of the carrier of the card. This results in an identification signal which is difficult to replicate by a forger and yet which can be easily generated and transmitted by the user of the card.

15 Preferred features of the invention are described in the claims appendant on claims 1 and 5 to which reference should now be made.

An embodiment of the invention will now be described, by way of example, with reference to the accompanying figures in which:

20 Figure 1 illustrates (not to scale) a remote identification system; and

Figure 2 is a block diagram of the flow of information corresponding to the system in figure 1.

25 Figure 1 illustrates a remote identification system for verifying the identity of a card carrier at the location

remote from an operator processing a transaction. The embodiment is particularly suitable, eg, for verifying the identify of the person giving telephone instructions for banking, stock broking, or dealing transactions.

5 A card 1, for example a PCMCIA card, has an in-built fingerprint sensor 2 and on-card memory 3 and data processing means 4. The card construction is as described in International Patent application no. PCT/GB94/00900.

A card reader having a card receiving slot 6 is
10 incorporated in a first telephone 7, for use for example, by a first person for instructing a second person to carry out a transaction. A second telephone 8 in communication with the first telephone 7 for use by second person being instructed to carry out the transaction incorporates a
15 display system 9 and/or is connected to an external display system 9a.

When the card carrier using the first telephone 7 to instruct a transaction wishes to identify himself, he inserts the card 1 in the slot 6 and presses down on the
20 fingerprint sensor 2 with the tip of one of his fingers. As described in more detail below, the sensed fingerprint pattern is compared with a stored fingerprint pattern corresponding to the authorised carrier of the card. This stored pattern is held in an on-card memory 3.

25 If the sensed and stored fingerprint patterns correspond, a signal representing an image of the face of the authorised card carrier is transmitted down the telephone line connecting the two telephones to the second telephone 8. The identification display system 9 or 9a includes a

screen or visual display unit 10 or 10a and data processing means 11. The data processing means 11 receives the transmitted image signal and causes the image of the authorised card carrier represented by the image signal to be displayed on the screen 10.

Referring to Figure 2, the on-card memory means 3 includes a first memory 12 for storing a signal representing the finger print pattern of the authorised carrier of the card, and a second memory 13 storing in digital form, i.e. 10 as a bit map, an image of the face of the authorised carrier of the card. The on-card data processing means 4 includes a comparison means 14 for comparing the fingerprint pattern signal generated by the fingerprint sensor 2 and its associated data processing circuitry with 15 the stored signal in the first memory 12. A comparison means 14 generates a coincidence signal when the stored and generated signals match.

The coincidence signal is then used to address the second memory 13 and an image signal is transmitted by the image 20 signal generating means 15 via a telephone connection 16 (either a radio or fixed line) to the second telephone 8. The second telephone set 8 is connected to data processing means 11 which convert the image generated in the first telephone set 7 from the bit map stored in the second 25 memory 13 into a visual display of the image of the, say, face of the authorised carrier of the card for display on a screen 10.

As shown in Figure 1, the two telephones 7 and 8 may be of similar construction so that each participant in a

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telephone conversation can verify the identity of the other participant.

CLAIMS

1. An identification method including the steps of generating a signal corresponding to a fingerprint pattern, comparing the generated signal to a stored 5 fingerprint signal, generating a coincidence signal when the stored and generated fingerprint signals match, and using the coincidence signal to generate a display of a stored image characteristic of a pre-determined person.
3. An identification method according to claim 1 wherein 10 the coincidence signal is used to address a memory storing in digital form an image signal representing the characteristic image.
3. An identification method according to any preceding 15 claim including the step of transmitting the image signal to a location remote from that where the fingerprint pattern is sensed, and generating the display at the remote location.
4. An identification device including fingerprint sensing means for sensing a fingerprint pattern, data 20 processing means for producing a signal representing a sensed fingerprint pattern, a first memory for storing a signal representing a selected fingerprint pattern of a pre-determined person, signal comparison means for comparing a signal generated by the data processing means 25 from a sensed fingerprint pattern with the stored fingerprint pattern and generating a coincidence signal when the two match, second memory means for storing an image signal representing an image characteristic of the pre-determined person, addressing means for retrieving the

characteristic signal from the second memory when a coincidence signal is generated by the comparison means, and display means for converting the image signal into a characteristic display.

- 5 5. An identification device according to claim 4, wherein the second memory means stores an image of at least a portion of the pre-determined person whose fingerprint pattern is stored in the first memory means.
- 10 6. An identification device according to claim 5 wherein the second memory stores the image signal in digital form.
7. An identification device according to any of claims 4 to 6 wherein the display means is remote from the fingerprint sensor.
- 15 8. An identification device according to claim 7 wherein the portion of the device in the same location as the sensor is connected by a telephone link to the portion of the device at the remote location with the display.
9. An identification method substantially as herein described, with reference to the accompanying figures.
- 20 10. An identification device substantially as herein described, with reference to the accompanying figures.



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Application No: GB 9600359.5
Claims searched: 1 to 10

Examiner: John Donaldson
Date of search: 20 January 1997

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.O): G4R(REP, REX, RHA, RHB, RRH, RRL, RRM, RRQ)

Int Cl (Ed.6): A61B 5/00, 5/117; G06K 9/00, 17/00; G07C 9/00

Other: Online:WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	GB 2174831 A (QUANTUM FUND), see page 4, lines 40 to 83	-

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|---|--|
| X Document indicating lack of novelty or inventive step | A Document indicating technological background and/or state of the art. |
| Y Document indicating lack of inventive step if combined with one or more other documents of same category. | P Document published on or after the declared priority date but before the filing date of this invention. |
| & Member of the same patent family | E Patent document published on or after, but with priority date earlier than, the filing date of this application. |

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Applic. # _____

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